Office of Energy Efficiency and Renewable Energy

Nickel-Metal-Hydride Batteries

Background

The development of batteries that can provide performance comparable with that of conventional vehicles and at comparable cost is key to making electric vehicles (EVs) practical. Today's lead-acid batteries for EVs have limited range and must be recharged after traveling only relatively short distances.

Accomplishments

- Nickel-metal-hydride battery (NiMH) technology, which extends EV range, was developed by the United States Advanced Battery Consortium (USABC) under a cooperative agreement with the U.S. Department of Energy that began in 1991.
- The NiMH technology is powering EVs in introductory market programs with battery packs provided by two developers.
- General Motors introduced the EV-1 electric car and the S-10 electric pickup truck that employ the NiMH battery. Chrysler also introduced the EPIC electric minivan with this battery. Engineering evaluations and customer response to these vehicles show satisfaction with their longer range and more consistent performance.

Benefits

- Advances in the specific energy of the battery has improved the EV driving range.
- Use of electric vehicles reduces the amount of primary energy used; very little petroleum is consumed. EVs are currently the only technology that meets the California definition of a zero-emission vehicle.

Nickel-Metal-Hydride Battery from GM Ovonic

Future Activities

- Support introduction of EVs, based on California's regulatory program, which has a goal of 10% market share by 2003.
- Support the introduction of EVs with advanced batteries in the federal fleet.
- Continue support of second-generation advanced lithium batteries through the USABC Phase III cooperative agreement.

Partners in Success

USABC (DaimlerChrysler Corporation,
Ford Motor Company,
General Motors Corporation)
GM Ovonic
Ovonic Battery Company
Saft America

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